

Application Serial No. 09/380,208

Patent
Attorney's Docket No. 000500-196**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

15. (Currently amended) A method of achieving in an absorbent article that includes (1) an absorbent body disposed between a liquid-impermeable bottom sheet which is intended to lie distal from a wearer in use, (2) a liquid-permeable upper sheet which is intended to lie proximal to the wearer, and (3) either 4) a) at least one longitudinally extending liquid barrier on each side of a center line of the upper sheet made of essentially liquid-impervious material and fastened along or adjacent to a respective longitudinally extending side extremity of the absorbent article and comprising a free elastic sealing edge intended to be stretched against the wearer, or 2) b) above the upper sheet, a top liquid-impermeable sheet which is intended to lie against the wearer, includes elastic for shaping the article to the wearer's body, and includes apertures intended to lie in register with the anus and the urethra orifice of the wearer, around which apertures elastically puckered sealing edges are disposed in the top sheet,

an improved sealing ability against the skin of the wearer, at a given available elongation, by at least one sealing edge on each side of the center line, comprising modifying or treating the absorbent article in such a way as to cause the absolute value of $\Delta P = 2\gamma \cos\theta_m / r$ for said sealing edge to increase, where γ designates the surface tension of a liquid to be absorbed by suction, r designates the radius of the largest circle that can be encompassed in any pore with walls formed by said sealing edge against the wearer's skin at the given available elongation, and $\cos\theta_m$ is the weighted mean value

Application Serial No. 09/380,208

Patent
Attorney's Docket No. 000500-196

of $\cos\theta$, where θ is the wetting angle of the liquid to the sealing edge or the skin comprising the pore walls.

16. (Previously presented) The method according to Claim 15, comprising causing said absolute value of ΔP to increase at least within a major part of an available elongation range of 20-40%.

17. (Previously presented) The method according to Claim 15, comprising causing said absolute value of ΔP to increase by at least 5%.

18. (Previously presented) The method of Claim 15, comprising causing said absolute value of ΔP to increase by at least 15%.

19. (Previously presented) The method of Claim 15, comprising causing said absolute value of ΔP to increase by at least 25%.

20. (Previously presented) The method of Claim 15, comprising causing said absolute value of ΔP to increase by at least 35%.

21. (Previously presented) A method according to Claim 15, comprising causing said pore radius of said sealing edge to decrease at least at an available elongation above 60%.

22. (Previously presented) A method according to Claim 15, comprising causing said pore radius of said sealing edge to decrease at least at an available elongation above 50%.

23. (Previously presented) A method according to Claim 15, comprising causing said pore radius of said sealing edge to decrease at least at an available elongation above 40%.

24. (Previously presented) A method according to Claim 15, comprising causing said pore radius of said sealing edge to decrease at least at an available elongation above 20%.

Application Serial No. 09/380,208

Patent
Attorney's Docket No. 000500-196

25. (Previously presented) The method according to Claim 15, comprising causing the absolute value of $\cos\theta_m$ to increase.

26. (Previously presented) The method according to Claim 25, comprising treating said sealing edge such that a higher wetting angle of the liquid to the sealing edge comprising the pore wall will be obtained and/or such that a higher wetting angle of the liquid to the skin of the wearer will be obtained within those regions in which said sealing edge lies against the skin when the absorbent article is donned.

27. (Previously presented) The method according to Claim 15, comprising providing said sealing edge with a layer of material that increases the absolute value of $\cos\theta_m$ and/or that reduces r when the article is donned.

28. (Previously presented) The method according to Claim 15, comprising causing the absolute value of $\cos\theta_m/r$ to increase.

29. (Previously presented) An absorbent article that includes an absorbent body disposed between a liquid-impermeable bottom sheet which is intended to lie distal from a wearer in use, a liquid-permeable upper sheet which is intended to lie proximal to the wearer, and either 1) at least one longitudinally extending liquid barrier on each side of a center line of the upper sheet, made of essentially liquid-impervious material and fastened along or adjacent to a respective longitudinally extending side extremity of the article and including a free elastic sealing edge intended to be stretched against the wearer, or 2) above the upper sheet, a liquid-impermeable top sheet which is intended to lie against the wearer, includes elastic for shaping the article to the wearer's body, and includes apertures intended to lie in register with the anus and the urethra orifice of the wearer, around which apertures elastically puckered sealing edges are disposed in the top sheet where, in respect of at least one sealing edge on each side of the center line of said absorbent body, the absolute value of $\Delta P = 2\gamma \cos\theta_m/r$ lies above a line $y=kx + m$,

Application Serial No. 09/380,208

Patent
Attorney's Dock t No. 000500-196

where x designates the available elongation of the sealing edge, k has the value $-14/30$ and m has a value in the range of 48 to 69, within the major part of an available elongation range of between 20 and 40 %, and where γ designates the surface tension of a liquid to be absorbed, r designates the radius of the largest circle that can be enclosed in any pore with walls formed by said sealing edge against the skin of the wearer at a given available elongation, and $\cos\theta_m$ is the weighted value of $\cos\theta$, where θ is the wetting angle of the liquid to the sealing edge or the skin comprising the pore walls.

30. (Previously presented) The article according to Claim 29, wherein m equals 48.

31. (Previously presented) The article according to Claim 29, wherein m equals 51.

32. (Previously presented) The article according to Claim 29, wherein m equals 57.

33. (Previously presented) The article according to Claim 29, wherein m equals 63.

34. (Previously presented) The article according to Claim 29, wherein m equals 69.

35. (Previously presented) The article according to Claim 29, wherein said free sealing edge includes a layer of a material such that a higher wetting angle of the liquid to the sealing edge material will be obtained and/or such that a higher wetting angle of the liquid to the skin of the wearer will be obtained within those regions in which said sealing edge lies against the skin and where said material smears the skin when the absorbent article is donned.

Application Serial No. 09/380,208

Patent
Attorney's Docket No. 000500-196

36. (Previously presented) The article according to Claim 29, wherein said free elastic sealing edge is provided with a layer of a material which at least partly fills out the pores in said free sealing edge when the article is donned.

37. (Previously presented) The article according to Claim 29, wherein, when the article is donned, said free elastic sealing edge has a pore radius which is essentially independent of the available elongation or stretch and which is at most 0.10 mm.

38. (Previously presented) The article according to Claim 37, wherein the pore radius is at most 0.08 mm.

39. (Previously presented) The article according to Claim 37, wherein the pore radius is at most 0.04 mm.

40. (Previously presented) The article according to Claim 29, wherein said free elastic sealing edge is comprised of a ribbon-like elastic film.

41. (Previously presented) The article according to Claim 29, wherein said absolute value of $\Delta P = 2\gamma \cos\theta m/r$ lies above the line $y=kx+m$ within the major part of an available elongation range of 15-50%.

42. (Previously presented) The article according to Claim 41, wherein the available elongation range is 10-60%.